

Application No. 10/605,625
Reply to Office Action dated May 4, 2005

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figure 1. This sheet, which includes Figure 1, replaces the original sheet including Figure 1.

Attachment: Replacement Sheet

REMARKS

Claims 1-21 are presented for further examination. Claims 1, 2, 4-11, 13, and 17-19 have been amended. Claims 20 and 21 are new.

In the final Office Action mailed May 4, 2005, the Examiner rejected claim 5 under 35 U.S.C. Sec. 112 because of indefiniteness, i.e., the recitation of "such as." Claims 1, 2, 4-6, and 10-19 were rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,641,087 ("Nelson") in view of U.S. Patent No. 6,732,022 ("Mardirossian"). Claim 3 was rejected as obvious over Nelson and Mardirossian and further in view of U.S. Patent No. 6,810,310 ("McBain"). Claim 7 was rejected as obvious over Nelson in view of Mardirossian and further in view of U.S. Patent No. 6,385,513 ("Murray et al."). Claims 8 and 9 were found to be allowable.

Applicant respectfully disagrees with the bases for the rejections and requests reconsideration and further examination of the claims.

The foregoing amendment to claim 5 has overcome the objection raised by the Examiner. In addition, applicant is submitting herewith a substitute formal Figure 1 in which an omitted satellite phone connection for element 60 has now been included. No new matter has been added. Applicant respectfully requests approval and entry of the substitute formal Figure 1 in the application.

Claim 1 and independent claims 11, 13, and 17-19 are all directed to the automatic and independent protection of an aircraft from unsafe operation, from collision with an object, and from course deviation without requiring human intervention or in spite of human intervention, such as unauthorized actions of hijackers or even the flight crew, and at all times while the aircraft is in service. Thus, the present invention protects the aircraft even while it is on the ground, such as during, before, and after taxiing operations. Moreover, the claimed invention is completely independent, and is capable of not permitting the use of an on-board autopilot or remote control from the ground. The only remote control that is permitted must be from an authorized second aircraft using the same system.

Nelson, U.S. Patent No. 6,641,087, describes an anti-hijacking system (NOT an anti-crash system) that operates only while the aircraft is in the air and that requires human

intervention to activate the system and an autopilot to implement the system. This is summarized in the Abstract wherein Nelson requires activation of a “panic button” by the flight crew or receipt of override signals from a remote guidance facility outside the aircraft. Nelson further describes at col. 5, lines 20-60, the remote guidance facilities as including “carefully screened personnel.” Nowhere does Nelson teach the automatic and independent prevention of aircraft collision with objects at all times while the aircraft is in service, requiring instead the aircraft be in the air and requiring human intervention to thwart high-jacking. Nowhere does Nelson teach a completely contained system. Nowhere does Nelson teach or suggest not permitting the use of the autopilot or ground-based remote control.

Mardirossian, U.S. Patent No. 6,732,022, is directed to a control system for an air vehicle that requires use of the autopilot to implement remote control signals initiated from ground-based facilities. Mardirossian does not prevent collisions with all objects, only preselected objects. Moreover, Mardirossian does not teach or suggest remote control while the aircraft is on the ground, and this system is not capable of controlling the aircraft and its systems while on the ground.

McBain, U.S. Patent No. 6,810,310, requires human intervention and hence is not automatic. McBain also describes the required use of the on-board autopilot, and thus is not an independent system. McBain does not teach or suggest automated monitoring of the aircraft, and instead teaches monitoring of the pilot’s vital signs.

Turning to the claims, claim 1 recites a system for protecting aircraft operation at all times while an aircraft is in service. Nowhere do any of the references cited and applied by the Examiner teach or suggest this feature.

Claim 1 further recites the system as comprising an anti-crash system that automatically prevents an aircraft from colliding with other objects. Nowhere do any of the references taken alone or in any combination thereof teach this feature in combination with the other features of claim 1.

Continuing, claim 1 also recites an auto-controlling and piloting system receiving commands from said anti-crash system and configured to prevent control by ground-based remote control and on-board autopilot, a monitoring device system communicating with said

anti-crash system, an authorities security aircraft flight equipment computer communicating with said anti-crash system, said auto-controlling and piloting system, and said monitoring system, and a further comprising a secondary aircraft controller system. As discussed above, Nelson and Mardirossian require the use of the on-board autopilot and therefore lack the independence provided by the present invention.

Moreover, in the present invention, the auto-controlling and piloting system (ACPS) 40 is connected to the autopilot 80 by line 10 and is also connected directly to the aircraft systems 80, 90, 100, 110, 120, 130, 14, 150, 160, and 170 by line 10 through the anti-crash system (ACS) 20. The present invention automatically overrides or locks out the autopilot without disabling it in order to independently take control of aircraft and its systems. Nelson, on the other hand, teaches at col. 8 lines 35-36, "still leaving the autopilot's functionality intact" while deactivating the keypad to the autopilot. In contrast, Nelson describes inputting command and control signals through the autopilot to direct the aircraft's flight path (see col. 8, lines 50-52).

Any combination of Nelson and Mardirossian would fall short of the present claimed combination for a number of reasons. Because Nelson requires human use of a panic button, it cannot be automated, and Mardirossian provides no teaching or suggestion as to how to automate Nelson in order to accomplish the objectives of Nelson. Moreover, Mardirossian would not implement ground control in Nelson, such as during taxi operations, and would not prevent collision with airborne objects, and hence the combination of Mardirossian and Nelson as suggested by the Examiner would fall short of the claimed combination.

For all of these reasons, applicant respectfully submits that claim 1 is allowable. Dependent claims 2-10 are also allowable for these reasons as well as for the additional features recited therein. For example, in claim 4, the system installed on the ground-based object would send out no-fly zone information, including distance and altitude information of the object, which is not described or suggested in the references.

Independent claims 11, 13, and 17-19 each recite one or more of the features discussed above with respect to claim 1. Applicant respectfully submits that these claims and all claims depending therefrom are allowable for the reasons why claims 1-10 are allowable.

New claims 20 and 21 are allowable dependent claims 8 and 9 rewritten to include the limitations of the base claim and any intervening claim, and hence these claims are allowable.

In view of the foregoing, applicant respectfully submits that all of the claims in this application, i.e. claims 1-21, are clearly in condition for allowance. In the event the Examiner disagrees or finds minor informalities that can be resolved by telephone conference, the Examiner is urged to contact applicant's undersigned representative by telephone at (206) 622-4900 in order to expeditiously resolve prosecution of this application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
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ERT:jk

Enclosures:

- Postcard
- 1 Sheet of Drawings (Figure 1)

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